Morphology of Porous $CaCo_3$ Vaterites as Components of Targeted Drug Delivery Systems in Rat Muscular Tissue

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In this work, behavior of porous spherical $CaCO_3$ vaterites (components of targeted drug delivery systems) introduced in rat muscle tissue was studied. Vaterites carriers contacted with living tissues for different periods of time (3 days, 1, 2, 4 and 12 weeks). It was shown that structural transformation and bioresorption of the studied carriers occurred over time. In 3 days after operation, transformation of spherical structures into needle-like structures was observed, followed by their complete bioresorption within 2 weeks. At the same time, no pathological effect of porous $CaCO_3$ particles on the surrounding tissues was revealed, which confirms safety of using $CaCO_3$ vaterites in medicine and allows us to recommend them for further research as components of targeted drug delivery systems.

Keywords: target drug delivery systems, calcium carbonate, bioresorption, muscular tissue, *in vivo* experiment